

## Constraining the Lifetime of Circumstellar Disks in the Terrestrial Planet Zone: A Mid-IR Survey of the 30-Myr-old Tucana-Horologium Association

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We have conducted an N-band survey of 14 young stars in the  $\sim 30$ -Myr-old Tucana-Horologium Association to search for evidence of warm, circumstellar dust disks. Using the MIRAC-BLINC camera on the Magellan I (Baade) 6.5-m telescope, we find that none of the stars have a statistically significant N-band excess compared to the predicted stellar photospheric flux. Using three different sets of assumptions, this null result rules out the existence of the following around these post-T Tauri stars: (a) optically-thick disks with inner hole radii of  $< 0.1$  AU, (b) optically-thin disks with masses of  $> 10^{-6} M_{\text{Earth}}$  (in  $\sim 1\text{-}\mu\text{m}$ -sized grains) within  $\sim 10$  AU of these stars, (c) scaled-up analogs of the solar system zodiacal dust cloud with  $> 4000$  times the emitting area. Our survey was sensitive to dust disks in the terrestrial planet zone with fractional luminosity of  $\log(L_{\text{dust}}/L_*) \approx 10^{-2.9}$ , yet none were found. Combined with results from previous surveys, these data suggest that circumstellar dust disks become so optically-thin as to be undetectable at N-band before age  $\sim 20$  Myr. We also present N-band photometry for several members of other young associations and a subsample of targets that will be observed with Spitzer Space Telescope by the the *Formation and Evolution of Planetary Systems* (FEPS) Legacy Science Program. Lastly, we present an absolute calibration of MIRAC-BLINC for four filters (L, N, 11.6, and Q<sub>s</sub>) on the Cohen-Walker-Witteborn system.

